COUNTRY CHEF RESTAURANT (PWSNO 1280116)
SOURCE WATER ASSESSMENT REPORT

March 27, 2003

State of Idaho
Department of Environmental Quality

SOURCE WATER ASSESSMENT FOR COUNTRY CHEF RESTAURANT

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Idaho Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your drinking water source is based on well construction characteristics; site specific sensitivity factors associated with the aquifer the water is drawn from; a land use inventory inside the well recharge zone; and water quality history. For non-community transient water systems like Country Chef Restaurant, recharge zones were generally delineated as a 1000-foot fixed radius around the wells.

This report, *Source Water Assessment for Country Chef Restaurant* describes factors used to assess susceptibility to contamination. The analysis relies on information from the well log; an inventory of land use inside the delineation boundaries, well site characteristics, potential contaminant sites identified through a Geographic Information System database search; and information from the public water system file. The ground water susceptibility analysis worksheet for Country Chef Restaurant is attached.

Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should not be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Well Construction. The Country Chef Restaurant is located on Highway 3 just south of Interstate 90 in rural Kootenai County, Idaho. Drinking water is supplied by a well reported to be 130 feet deep that was drilled in March 1975. No well log is on file with DEQ, and it was not found in a search of Idaho Department of Water Resources records. Notes in the public water system file for Country Chef say the well has a 6-inch steel casing that extends from about 7inches above grade to 125 feet. The casing wall thickness is 0.25 inches. Current Idaho Department of Water Resources well construction standards specify 0.28-inch steel for 6-inch casings. The upper end of the casing must extend at least 18 inches above grade. The static water level is 40 feet below land surface. Information about the surface seal is lacking. The well in the 100-year flood plain 20 to 30 feet south of Forth of July Creek. The well needs to be tested to determine whether it is surface water influenced.

Well Site Characteristics. Hydrologic sensitivity scores reflect natural geologic conditions at the well site and in the recharge zone. Information for this part of the analysis is derived from individual well logs and from the soil drainage classification inside the delineation boundaries. 3 points out of 6 points possible were marked against the Country Chef Restaurant well in this portion of the analysis.

Well Site Characteristics (continued). Soils covering the recharge zone delineated for Country Chef Restaurant are moderately- well to well drained. The reported soil profile at the well site is composed of sand and gravel from the surface to 40 feet; clay from 40 to 125 feet and gravel from 125 to 135 feet. The depth to first water is not known. File notes indicate that the pump is set 125 feet below the surface. The deep clay bed above this level may protect the ground water from vertical transport of contaminants.

Potential Contaminant Inventory. Potential sources of contamination inside the 1000-foot radius delineated around the Country Chef Restaurant well include surface water, highways and a gas station. Microbial contamination is the primary concern with surface water. The well needs to be tested to determine whether it is surface water influenced. As major trucking routes, the highways are potential sources of every class of regulated contaminant. Synthetic and volatile organic chemicals are the potential contaminants associated with petroleum products. Septic system components for the restaurant are located outside of the sanitary setback zone.

Water Quality History. Country Chef Restaurant had sporadic water quality problems until the winter and spring of 2001 when testing results showed persistent microbial contamination. Repeated maximum contaminant level violations for total coliform prompted a sanitary survey in July 2001. The system was disapproved, but has changed ownership since then. In order to bring the Country Chef back into compliance, the system needs to complete the following improvements by March 31, 2003:

- install previously approved disinfection equipment or to submit monthly total coliform samples for a year
- extend and vent the well casing
- replace a broken pressure switch
- install a flow meter and pressure relief valve on the well discharge line
- complete a microscopic particulate analysis of the well.

Annual tests for nitrates show concentrations ranging from undetectable levels to 0.173 mg/l. The Maximum Contaminant Level for nitrate is 10 mg/l.

Susceptibility to Contamination. An analysis of the Country Chef Restaurant well, incorporating information from the public water system file, and the potential contaminant inventory, ranked the well highly susceptible to microbial contamination. The well ranked moderately susceptible to other classes of regulated contaminants. The complete ground water susceptibility worksheet for your system is on page 6 of this report. Formulas used to compute final scores and susceptibility rankings are at the bottom of the worksheet.

Source Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Operating and maintaining the well in compliance with the *Idaho Rules for Public Drinking Water Systems* is the best drinking water protection tool available to Country Chef Restaurant. The microscopic particulate analysis of the well ordered in the 2001 Sanitary Survey report is especially important since it will help you diagnose the origin of the microbial contamination. Until it is done, you won't know if the groundwater itself is contaminated, or if the problem is caused by something less expensive to fix.

The system should develop maintenance and testing calendar for itself. Consistent monitoring tells how your system is performing so steps can be taken to reduce threats to public health and liability to the business from an outbreak of waterborne illness.

There are a number of voluntary well protection measures Country Chef Restaurant should also consider. It might be helpful to cover the wellhead and possibly fence the area around it to keep people, pets and vehicles out of the sanitary setback zone. The system should look into ground water stewardship programs like Home*A*Syst on the web or by phone (608) 262-0024. These programs are designed to help well owners assess everyday activities for their potential impact on drinking water quality. Topics include septic system maintenance, petroleum product storage, handling and storing lawn and household chemicals and similar activities.

Every water system should develop an emergency response plan. There is a simple fill-in-the-blanks form available on the DEQ website (www.deq.state.id.us/water/water1.htm) to guide systems through the emergency planning process.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

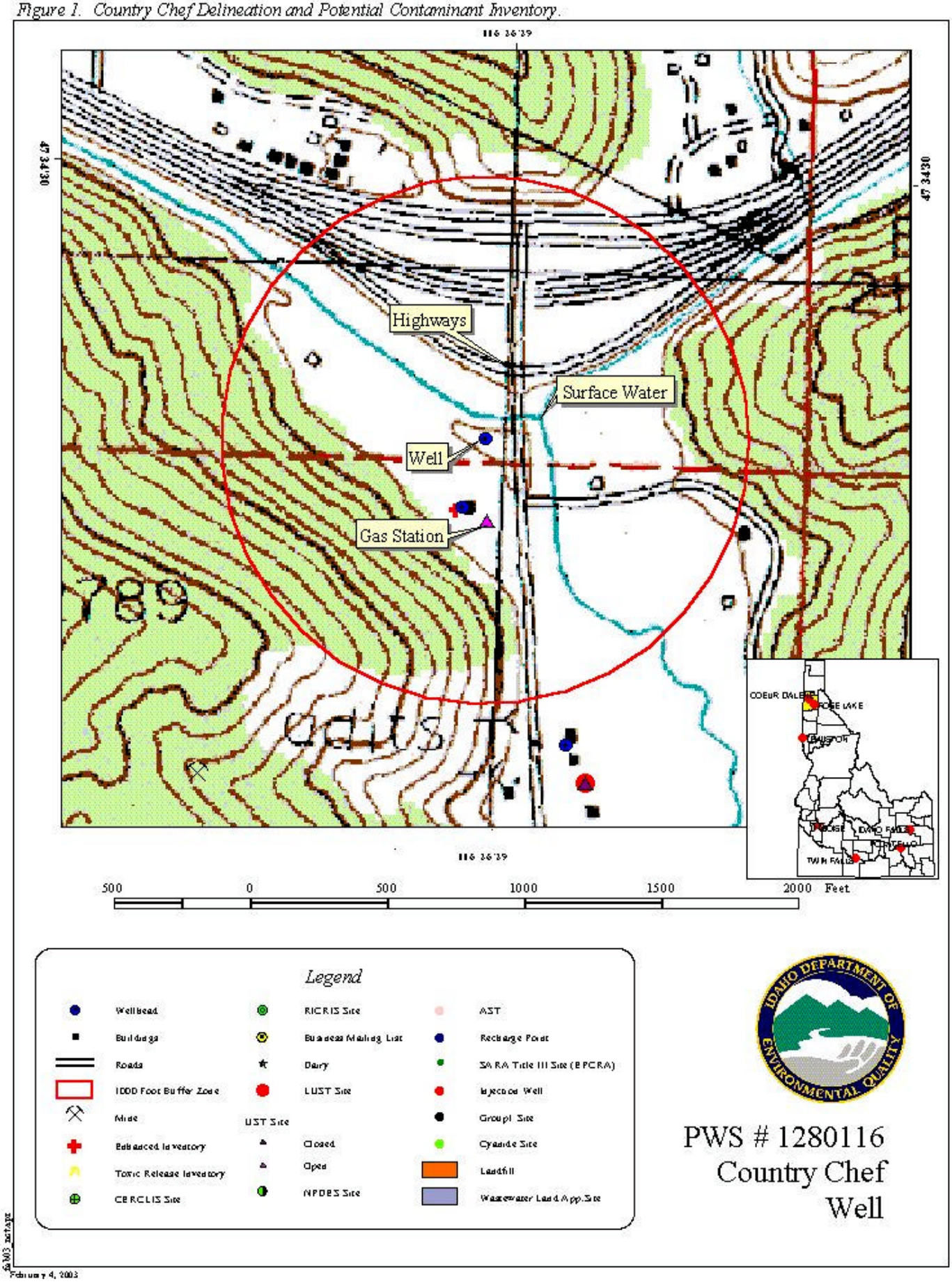
Assistance. Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request help with drinking water protection planning.

Coeur d'Alene Regional DEQ Office	(208) 769-1422
State IDEQ Office	(208) 373-0502
DEQ Website:	www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper of the Idaho Rural Water Association (208) 343-7001 for assistance with drinking water protection strategies.

Idaho Rural Water Association Website:	www.idahoruralwater.com
Home * A * Syst Website:	www.uwex.edu/homeasyst

Figure 1. Country Chef Delineation and Potential Contaminant Inventory.



Ground Water Susceptibility

Public Water System Name : **COUNTRY CHEF RESTAURANT** Source: **WELL #1**

Public Water System Number : **1280116** 2/4/03 2:19:18 PM

1. System Construction		SCORE			
Drill Date	3/8/75				
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES 2001				
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	NO	1			
Casing and annular seal extend to low permeability unit	Casing yes, Seal Unknown	1			
Highest production 100 feet below static water level	UNKNOWN	1			
Well located outside the 100 year flood plain	NO	1			
Total System Construction Score		**5**			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	NO	0			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	YES	0			
Total Hydrologic Score		**3**			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use		Score	Score	Score	Score
Land Use	SUBURBAN	1	1	1	1
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Sanitary Setback	YES. Surface Water	NO	NO	NO	YES
Total Potential Contaminant Source/Land Use Score		**1**	**1**	**1**	**1**
Potential Contaminant / Land Use - 1000-Foot Radius					
Contaminant sources present (Number of Sources)	YES. Gas Station, Highways, Creeks	1	2	2	2
(Score = # Sources X 2) 8 Points Maximum		2	4	4	4
Sources of Class II or III leacheable contaminants or Microbials	YES	1	2	2	
4 Points Maximum		1	2	2	
1000-Foot Radius contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use 1000-Foot Radius	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - 1000-Foot Radius		**3**	**6**	**6**	**4**
Cumulative Potential Contaminant / Land Use Score		**4**	**7**	**7**	**5**
4. Final Susceptibility Source Score		**9**	**10**	**10**	**10**
5. Final Well Ranking		Moderate	Moderate	Moderate	***High**

* High due to sampling history and presence of creek within 50 feet of well.

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

0 - 5 Low Susceptibility
6 - 12 Moderate Susceptibility
> 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ? Superfund? is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.